

#### Criteria and Adhoc Attributes

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#### What Is An Adhoc?

 Adhoc Attributes (also referred to as just Adhocs) are pieces of user defined information that can be added to Microstation elements. These pieces of information can be just about anything.

#### What Is An Adhoc?

#### Examples:

- Pipe Material
- Pipe Size
- Tree Size for a Cell
- Number of Layers of Base
- Cross Slope of Sidewalk
- Curb Height
- Special Ditch Profile Name
- Type of Retaining Wall
- Etc.

#### What Is An Adhoc?

 Multiple Adhocs can be added to an element, and every Adhoc has a Name, Type and Value.

Name of Adhoc: Pipe Material

Type of Adhoc: String

Value of Adhoc: Concrete

Name of Adhoc: Pipe Diameter

Type of Adhoc: Numeric

Value of Adhoc: 1.5



#### What Elements Can Use Adhocs?

 There is no limitation on the type of MicroStation element that can be tagged. Every type of element from cells to text are acceptable.

#### Characteristics Of Adhocs

#### **Adhoc Name:**

- The Adhoc name can be just about anything. There are no character limitations as far as which characters can be used to create the name, but the name is limited to 22 total characters. Here are some examples:
- Type-of-Cable
- Genus of Tree
- Cable\_Length

#### Characteristics Of Adhocs

#### Adhoc Type:

There are five (5) types of Adhocs:

- Numeric
- String
- Quantity
- Unit
- Remarks

Note: You can have multiple Adhocs with the same name, but they must be of different types.



#### Characteristics Of Adhocs

#### Adhoc Value:

For each type of Adhoc, you can assign an appropriate value (limited to **39** characters).

Numeric

Assign numeric value (0,1,32,1004.64.653, etc.).

String

Assign string value (Oak, 24" Asphalt, 14-4 Shielded Cable, etc.)

Quantity

Assign numeric value

Unit

Assign string value

Remarks

Assign string value

Note: You can have 255 Adhocs per element.

- Adhocs can be created and assigned to an element 4 ways:
  - Criteria (1) (Assigning Through Selection Sets)
  - Criteria (2) (Set Plot Parameters)
  - Adhoc Attribute Manager
  - D&C Manager Adhoc Attribute Table (4)

#### Criteria (1) (Assigning Through Selection Sets)

- \_ed\_<string>.AdhocNumericValue (<string>) = <numeric>
- \_ed\_<string>.AdhocStringValue (<string>) = <string>
- \_ed\_<string>.AdhocQuantityValue (<string>) = <numeric>
- \_ed\_<string>.AdhocUnitValue (<string>) = <string>
- \_ed\_<string>.AdhocRemarksValue (<string>) = <string>
- Write Adhoc (\_ed\_<string>)



Criteria (1) (Assigning Through Selection Sets)

#### Examples:

```
_ed_element.AdhocNumericValue(^Conduit Size^) = 3.5
```

\_ed\_element.AdhocStringValue(^TypeConduit^) = ^PVC^

Write Adhoc (\_ed\_element)

Note that this syntax "creates" the name and "assigns" the value in one command.

Criteria (1) (Assigning Through Selection Sets)

You can also use redefinable variables in assigning adhocs:

```
_d_Elevation = 1006.54
_ed_element.AdhocNumericValue(^Conduit Size^)=_d_Elevation
Write Adhoc (_ed_element)
```

Note: If the Adhoc Name does not exist, it will be created and given it's assigned value. However, if it already exists on the element then the it's value will be overwritten with the new assigned value.

Criteria (2) (Set Plot Parameters)

```
Set Plot Parameters

Lvname = Edge Of Sidewalk

Co = 3

Wt = 6

Lc = 3

Class = Primary

AdhocNumericValue (<string>) = <numeric>

AdhocStringValue (<string>) = <string>

AdhocQuantityValue (<string>) = <numeric>

AdhocUnitValue (<string>) = <string>

AdhocRemarksValue (<string>) = <string>
```

Criteria (2) (Set Plot Parameters)

Draw dx=20 dy=0

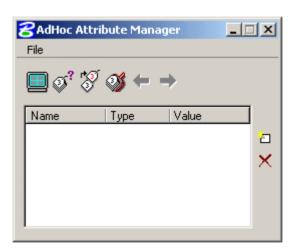
```
Example:
Set Plot Parameters
Lv = 2
Co = 3
Lc = 6
AdhocNumericValue(^Pipe Size^) = 24
```

Note: This same syntax can be used as part of other draw commands such as Draw Text and Draw Cell.

AdhocStringValue(^Pipe Material^) = ^Concrete^



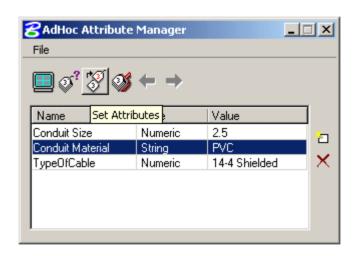
Adhoc Attribute Manager (3)



The Adhoc Attribute Manager can be used to assign Adhocs to existing elements in a design file.



Adhoc Attribute Manager (3)



The Set Attribute icon is used to tag Adhocs to an element. You can identify a single element or it will work on an entire Microstation Selection Set.



Adhoc Attribute Manager (3)

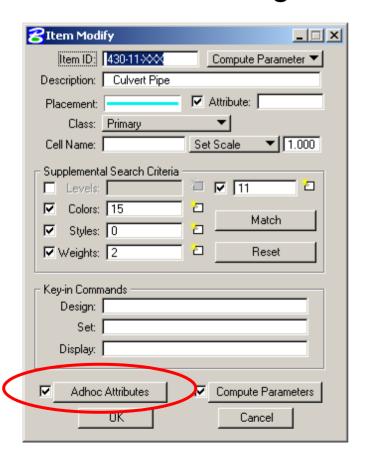


The preferences pulldown allows you to set the mode to Append or Replace when "Setting" the adhocs.

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## Creating and Assigning Adhocs

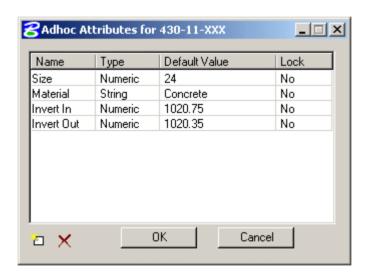
D&C Manager Adhoc Attribute Table (4)



The fourth way to create Adhocs with GEOPAK is to use the Adhoc Attribute Table within D&C Manager. When you create an Item, you'll notice you have the option to enable this table.



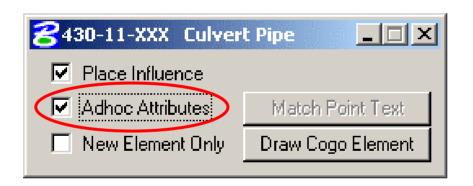
D&C Manager Adhoc Attribute Table (4)



You can then create a standard list of Adhocs that are saved with this item.



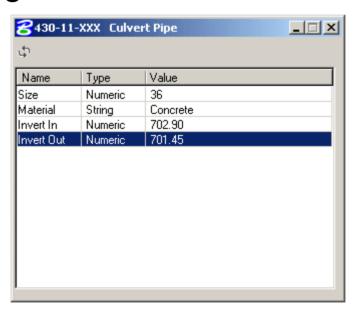
D&C Manager Adhoc Attribute Table (4)



Whenever you place an element using this item, just enable the Place Influence toggle as well as the Adhoc Attributes toggle.



D&C Manager Adhoc Attribute Table (4)

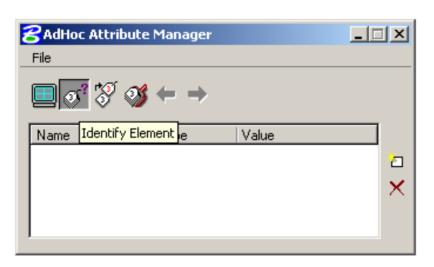


The Adhocs Attributes table will then pop-up and allow the user to change the Adhoc values. Each of these Adhocs will then be tagged to the element.

- There are two tools which can be used to display the Adhoc Attributes which have been tagged to an element in Microstation.
  - Adhoc Attribute Manager (1)
  - Application Attribute Viewer (2)



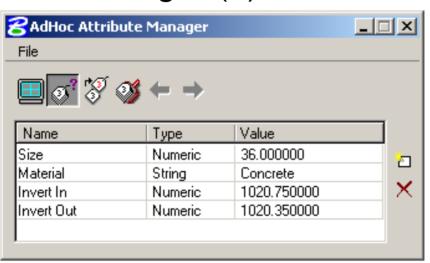
Adhoc Attribute Manager (1)



The simplest way to display any Adhocs that may be attached to an element is to ID the element using the Identify Element icon.



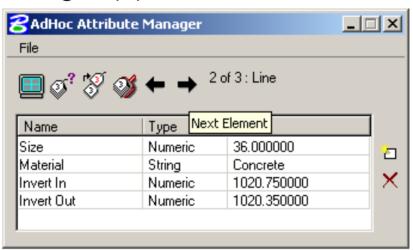
Adhoc Attribute Manager (1)



You can then just ID the element in the dgn file and any Adhocs tagged to that element will be displayed.



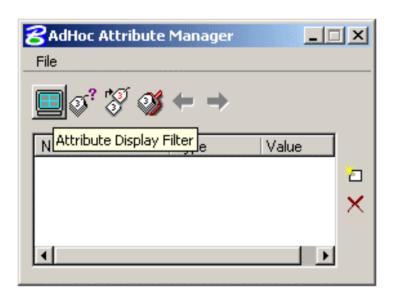
Adhoc Attribute Manager (1)



This same tool also works nicely with Microstation Selection Sets. Just put several elements into a Selection Set and then press the icon. It will pick them all up and allow you to browse the element using the arrows.



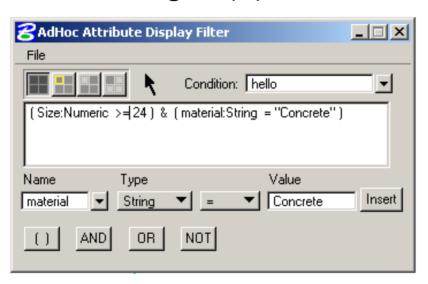
Adhoc Attribute Manager (1)



You can also use the Attribute Display Filter.



Adhoc Attribute Manager (1)

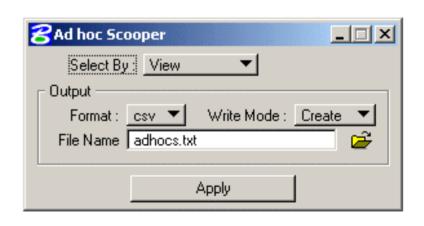


This tool allows you to view Adhocs based on filters that you can create.



Adhoc Attribute Manager (1)





There is also a tool called the Adhoc Scooper. This tool will "scoop" up all the Adhocs and write them to a text file or database.



Application Attribute Viewer (2)

Attribute	Value
AdHoc Attribute	
Size (Numeric)	36.000000
Material (String)	Concrete
Invert In (Numeric)	1020.750000
Invert Out (Numeric)	1020.350000

This tool can be used to ID any element and it will return any GEOPAK element attributes found on that element (e.g. D&C attribute, Chain Name, etc.). Although limited in the scope of what it can do with Adhocs, it can still display them very nicely.



To be able to have access to adhoc attributes assigned to MicroStation elements, the elements must first be assigned to a Selection Set. There are three types of Selection Sets:

- Define\_DGN Selection Set
- D&C Selection Set
- DGN Selection Set



Define\_DGN Selection Set

This selection set is created "on the fly" when intersecting plan elements. Must first move to the element. Only one element will ever be in the selection set.



# Define\_DGN Selection Set Example:

```
If (intersect dgn = "curb and gutter") then
draw skip dx=1 dy=0 to "curb and gutter"

_ss_selection_set = Define_DGN Selection Set
_ed_selection_set = _ss_selection_set(1)

_d_CurbHt = ed_selection_set.adhocNumericValue(^Curb Height^)

_s_CurbType = ed_selection_set.adhocStringValue(^Type of Curb^)
```

Define\_DGN Selection Set Advantages

Using a Define\_DGN Selections Set has a great advantage over redefinable variables.

- No Station Ranges
- Plan View Graphics Controlled



D&C Selection Set

This selection set is created when running Plan View 3PC applications. The selection set matches the D&C ltem's Placement Attributes.

# D&C Selection Set Example:

```
_ss_selection_set = D&C Selection Set

_ed_element = _ss_selection_set(1)

while (_ed_element)

{
   __d_TreeDia = ed_selection_set.adhocNumericValue(^Diameter^)
   __ed_element = _ss_selection_set(_ed_element + 1)

/* the previous line increments to the next element */
}
```



DGN Selection Set

This selection set is created by the user as a MicroStation Selection Set before running a Plan View 3PC applications.

## DGN Selection Set Example:

```
_ss_selection_set = DGN Selection Set

_ed_element = _ss_selection_set(1)

while (_ed_element)

{

_s_TreeType = ed_selection_set.adhocStringValue(^Species^)

_ed_element = _ss_selection_set(_ed_element + 1)

/* the previous line increments to the next element */

}
```



### Writing Adhoc Attributes To Text

 When placing text on cross sections, adhoc attributes maybe written to the text. These adhoc attributes may then be used for writing custom reports.

## Writing Adhoc Attributes To Text

#### Example:

```
define "Text Symbology" just=cc angle=0 th=1tw=1ft=23
mark _mp_point_to_label /* this will go inside of an "if" statement */
s baseline = cluster baseline
_d_offset = _mp_point_to_label.off
_d_region = region
_s_region = cvt_d_s0(_d_region)
_d_elev = _mp_point_to_label.elev
_d_northing = _mp_point_to_label.y
_d_easting = _mp_point_to_label.x
_d_dac = _mp_point_to_label.distalongchain
_d_sta = station
_s_sta = cvt_d_sta(_d_sta)
```

Continued on next slide...

### Writing Adhoc Attributes To Text

Example Continued....

```
draw gg=^pgrrt^ text value = _s_label_content
adHocStringValue(^Baseline^) = _s_baseline
adHocStringValue(^Station^) = s sta
adHocStringValue(^Region^) = _s_region
adHocNumericValue(^Offset^) = d offset
adHocNumericValue(^Plan View X^) = _d_easting
adHocNumericValue(^Plan View Y^) = _d_northing
adHocNumericValue(^Elevation^) = _d_elev
adHocNumericValue(^Dist. Along Chain^) = _d_dac
adHocStringValue(^Label Value^) = _s_label_content
adHocStringValue(^Label Description^) = _s_description
"Text Symbology"
```

## Creating The Text "Report"

Using 3PC criteria, a report can be generated. An excerpt of this 3PC application will be shown here.

```
_ss_set = d&c selection set
_ed_element = _ss_set(1)

While (_ed_element)

if (not _ed_element.adhocStringValue(^Baseline^) = ^^) then
    _s_bl_value = _ed_element.adhocStringValue(^Baseline^)
    _s_format = ^%s\n^

    ASCII Write File = output.csv
    format = _s_format
    var = _s_bl_value
    _ed_element = _ss_set(_ed_element + 1)
```



## Creating The Text "Report"

The complete 3PC criteria file for creating this report may be obtained from the following location:

ftp://ftp.geopak.com/pub/outgoing/Chuck/text\_report.3pc

This 3PC plan view criteria file must be ran from Design and Computation Manager within the cross section drawing where the previously drawn text resides. It will use the adhoc attributes assigned to the text in the previous slide examples.

#### Questions